



San Juan County

WASHINGTON STATE UNIVERSITY
EXTENSION

Beaverton Fertilizer and Lime Trial 2019

Table 1. Forage Yield and Quality With and Without Fertilizer (K+SOP and Bone Meal)

	No Fertilizer ± SD	With Fertilizer ± SD	P-Value
Total Dry Weight (lbs. /acre)	4958 ± 2030	6182 ± 1453	0.1944
Crude Protein (%)	6.75 ± 1.84	7.47 ± 1.13	0.422
Acid Detergent Fiber (% ADF)	35.48 ± 1.82	35.21 ± 0.64	NA
Neutral Detergent Fiber (% NDF)	57.02 ± 2.46	56.4 ± 1.21	0.652
Relative Feed Value (RFV)	100.2 ± 6.65	101.33 ± 3.08	0.748
Total Digestible Nutrients (TDN)	60.75 ± 1.97	61.05 ± 0.69	NA
Digestible Protein (%)	2.35 ± 1.84	3.07 ± 1.13	0.422
Digestible Dry Matter (% DDM)	61.25 ± 1.42	61.48 ± 0.5	NA
Dry Matter Intake (DMI)	2.1 ± 0.09	2.13 ± 0.05	0.515
Digestible Energy (MCAL/kg)	2.68 ± 0.09	2.69 ± 0.03	NA
Metabolizable energy (MSCAL/kg)	2.26 ± 0.09	2.27 ± 0.03	NA
Net Energy Lact. (MCAL/kg)	1.37 ± 0.05	1.38 ± 0.02	NA
Net Energy Maint. (MCAL/kg)	1.83 ± 0.08	1.85 ± 0.03	NA
Net Energy Gain (MCAL/kg)	1.14 ± 0.06	1.15 ± 0.02	NA
Phosphorous (%)	0.15 ± 0.07	0.16 ± 0.03	0.7725
Potassium (%)	0.51 ± 0.1	1.17 ± 0.12	NA
Calcium (%)	0.51 ± 0.13	0.5 ± 0.03	0.784
Magnesium (%)	0.23 ± 0.04	0.24 ± 0.01	0.739

Mean plus or minus standard deviation (SD)

*p-value <0.05, **p-value <0.01, ***p-value <0.001, values not available listed as NA



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Table 2. Forage Yield and Quality With and Without Lime

	No Lime \pm SD	With Lime \pm SD	P-Value
Total Dry Weight (lbs. /acre)	6102 \pm 2356	4474 \pm 946	0.3863
Crude Protein (%)	6.7 \pm 1.7	6.77 \pm 1.18	0.259
Acid Detergent Fiber (% ADF)	35.25 \pm 1.16	35.7 \pm 2.25	0.903
Neutral Detergent Fiber (% NDF)	56.8 \pm 1.78	57.6 \pm 2.62	0.541
Relative Feed Value (RFV)	100.7 \pm 4.68	98.67 \pm 7.37	0.669
Total Digestible Nutrients (TDN)	61.02 \pm 1.27	60.5 \pm 2.43	0.894
Digestible Protein (%)	2.3 \pm 1.7	2.37 \pm 1.18	0.259
Digestible Dry Matter (% DDM)	61.45 \pm 0.9	61.07 \pm 1.76	0.886
Dry Matter Intake (DMI)	2.1 \pm 0.06	2.1 \pm 0.1	0.432
Digestible Energy (MCAL/kg)	2.69 \pm 0.06	2.67 \pm 0.11	0.887
Metabolizable energy (MSCAL/kg)	2.27 \pm 0.6	2.25 \pm 0.11	0.893
Net Energy Lact. (MCAL/kg)	1.38 \pm 0.03	1.36 \pm 0.06	0.887
Net Energy Maint. (MCAL/kg)	1.84 \pm 0.05	1.82 \pm 0.1	0.858
Net Energy Gain (MCAL/kg)	1.15 \pm 0.04	1.13 \pm 0.08	0.876
Phosphorous (%)	0.14 \pm 0.06	0.16 \pm 0.07	NA
Potassium (%)	1.14 \pm 0.12	1.15 \pm 0.1	0.885
Calcium (%)	0.52 \pm 0.12	0.49 \pm 0.06	0.827
Magnesium (%)	0.23 \pm 0.04	0.24 \pm 0.03	0.598

Mean plus or minus standard deviation (SD)

*p-value <0.05, **p-value <0.01, ***p-value <0.001, values not available listed as NA

Trial Methods

11/11/16 - Applied Lime (calpril) @ 500 lbs./ acre

5/10/17 - Applied organic fertilizer 40 lbs. N, 130 lbs. P, 165 lbs. K per acre as K+SOP (0-0-50) @ 330 lbs./ acre; Bone Meal (4-13-0) @1000 lbs./ acre

7/14/17 - Sampled forage yield and quality

7/15/17 - Hayed

7/3/18 - Sampled forage yield and quality

July 2018 - Hayed

6/20/19 - Sampled forage yield and quality

6/21/19 - Hayed

For more information please contact Brook Brouwer at brook.brouwer@wsu.edu. Access to the Beaverton Preserve for this research was provided by the San Juan County Land Bank.